

On some new Fishes of India. By Surgeon-Major FRANCIS DAY, F.L.S., F.Z.S., Inspector-General of the Fisheries of India.

[Read April 3, 1873.]

WHILST inquiring into the fisheries at Madras and along the western coast of India or the contiguous Coimbatore district, the following new species of fish have (amongst others) been personally collected. A few remarks are likewise added on some of the specimens in the Madras Government Museum, which I took a hasty survey of whilst in that town.

Going over the identical ground I had previously collected in, as Vithry in the Wynaad and the Bowany river at the base of the Neilgherries, I found that fresh species rewarded a renewed research; whilst some which had been common at my former investigations were not then to be obtained.

SERRANUS OCEANUS, Lacép.

A specimen 9 inches long was captured at Madras last hot season, and is in the Museum. The whole of the dorsal fin has a blackish margin.

GENYOROGA MELANURA, Rüpp.

This fish, hitherto recorded as from the Red Sea, breeds at the Andaman Islands, where J. Wood Mason, Esq., captured several of the young in 1872.

MESOPRION JOHNNI, Bloch.

I obtained a quantity of the small fry of this species from the Madras markets in December 1872; all had a spinous prolongation at the angle of their preopercles, which becomes lost as they grow larger. This, however, is evidently not the case with all the fish of this genus, as such is not seen in *M. Russellii*.

SCATOPHAGUS ARGUS, Linn.

In the very young a bony ridge, terminating in a strong spine, passes from the upper margin of the orbit to above the opercle, ending on the shoulder.

OTOLITHUS BRUNNEUS, sp. nov.

D. 9 | $\frac{1}{28}$, A. $\frac{2}{7}$, L. r. 102, L. tr. $\frac{21}{34}$.

Length of head $\frac{3}{8}$, of caudal $\frac{2}{11}$, height of body $\frac{2}{11}$ of the total length.

Eyes: diameter $\frac{1}{4}$ of length of head, $1\frac{1}{2}$ diameter from end of snout.

Lower jaw slightly the longer, the posterior extremity of the maxilla reaches to beneath the hind edge of the orbit. *Preopercle* scarcely

denticulated, but most strongly so at its rounded angle. *Teeth* in the outer row enlarged; a pair of small canines. *Fins*: pectoral as long as the head without the snout; caudal pointed. *Colours*: brownish, becoming golden below; fins dark-coloured.

Habitat. Bombay, where it is not uncommon during the cold season. It attains at least 8 inches in length.

Fam. CARANGIDÆ.

There appear to be found in Madras a large number of Horse-Mackerels whose existence in the seas of the Indian Empire is still unrecorded. This fact did not escape the observation of the late Dr. Jerdon, who, in the 'Madras Journal of Literature and Science' (No. 39 of 1851), observed, after referring to ten distinct species, "besides all these, I have drawings of at least twelve more of this genus, most of which have distinct native names; but I have not the means of verifying them just now. They abound at Madras, but are comparatively rare on the Malabar coast." Amongst these twelve were probably the *Caranx mate*, Cuv. and Val., *C. Bidii*, Day, *C. melanostethos*, Day, and *C. nigrescens*, Day. Amongst the remainder would seem to be the following:—

CARANX GYMNOSTETHOIDES, Bleeker.

A specimen about 18 inches in length is in the Madras Museum, which, however, has D. $8 \frac{1}{30}$, A. $2 \frac{1}{27}$, instead of D. $8 \frac{1}{31}$, A. $2 \frac{1}{25}$; and two more, which I procured from the Bazaars, were identical with the Museum one. *Caranx macrurus*, Bleeker, *C. malam*, Bleeker, *C. ire*, Cuv. and Val., *C. sansun*, Rüpp., *C. chrysophryoides*, Bleeker, are all found in the sea at Madras.

HISTIOPHORUS BREVIROSTRIS, Playfair.

Two stuffed specimens, apparently identical with this species of Sword-fish, as described in the 'Fishes of Zanzibar,' exist in the Madras Museum. The longest is 4 feet 4 inches; they were obtained in Madras, where they are said to be not uncommon.

CYNOGLOSSUS MACROLEPIDOTUS, Bleeker.

This species of flatfish is common in Madras and on the Malabar coast.

CYNOGLOSSUS DUBIUS, sp. nov.

D. 110, V. 4, A. 88, C. 12, L. r. 104.

Length of head $\frac{1}{4}$, height of body $\frac{2}{3}$ of the total length. *Eyes*, diameter $\frac{1}{11}$ of length of head, $1\frac{1}{2}$ diameter apart; the upper eye very slightly

in advance of the lower. The rostral hook does not extend backwards so far as to below the orbit. Lips not fringed. Angle of mouth in the middle of the length of the head. A patent nostril in the interorbital space, and a tubular one before the lower eye. *Teeth*, palate edentulous. *Fins*: pectorals absent; only left ventral present, and it is joined to the anal; vertical fins confluent. *Scales* cycloid on both sides of the body. *Lateral lines*, two on the left side separated by 21 rows of scales. *Colours*: left side brown, without marks.

Habitat. Gwadur. 20 inches in length.

This species, having *cycloid* scales, may almost be separated from the genus *Cynoglossus*, as, on the same grounds, *Æsopia* has been from *Plagusia*.

GLYPTOSTERNUM MADRASPATANUM, sp. nov.

D. $\frac{1}{6}$ | 0, P. $\frac{1}{11}$, V. 6, A. $\frac{2}{8}$, C. 17.

Length of head nearly $\frac{1}{2}$, of caudal $\frac{2}{3}$, height of body $\frac{2}{3}$ of the total length. *Eyes* small, in the commencement of the posterior half of the length of the head. Width of head equals its length posterior to the anterior nostrils. *Barbels*: the nasal extend two thirds of the distance to the orbit; the maxillary reach the base of the pectoral spine; the external mandibular to the gill-opening, whilst the internal pair are rather shorter. Occipital process very narrow, four times as wide as long. Lips not fringed. Adhesive apparatus well developed. *Fins*: dorsal spine strong, not enveloped in skin, and having a few serrations posteriorly; it is as long as the head from the angle of the mouth; base of adipose dorsal equals that of the rayed fin; the pectoral almost reaches the ventral, its spine being four fifths as long as the head; it is not plaited inferiorly; the outer ventral rays are not enlarged, neither are they plaited; lower caudal lobe somewhat the longer. *Caudal penduncle* twice as long as high. *Skin* smooth. *Colours* yellowish, with dark bands; fins also yellow banded with black.

Habitat. Bowany river, at the base of the Neilgherry hills. Out of five specimens, the longest was 5 inches in length.

It differs from *G. striatum* more especially in the character of its dorsal spine.

SAURUS INDICUS, sp. nov.

B. XV. D. 13/0, P. 13, V. 9, A. 9, C. 19, L. 1. 55, L. tr. $3\frac{1}{2}$ | 7.

Length of head $\frac{3}{14}$, of caudal $\frac{2}{5}$, height of body $\frac{2}{3}$ of the total length. *Eyes*, diameter $\frac{3}{8}$ of the length of the head, rather above 1 diameter from end of snout, and 1 diameter apart. Width of snout equals its length. Interorbital space somewhat concave. Internal half of frontal bone corrugated, as is also the occipital, with smooth interspaces between the striæ. Upper jaw slightly the longer. *Teeth*, a

single row on the palate. *Fins*: dorsal longer than high; pectoral extends to the tenth scale of the lateral line; caudal deeply forked. Body cylindrical, tapering before and behind. *Scales*: 17 rows between the occiput and the origin of the rayed dorsal fin; those on the side of the tail not keeled. *Colours*: brownish in the upper two thirds, dirty white beneath, numerous bluish irregular spots or blotches along the back and sides, in places almost forming horizontal bands; dorsal and caudal white, with greyish spots constituting irregular horizontal lines.

Habitat. Madras, where I procured three specimens up to 7 inches in length.

It appears to be very similar to *S. atlanticus*, differing in the upper jaw being the longer, &c.

OSTEOCHILUS MALABARICUS, sp. nov.

B. III. D. 3/11, P. 19, V. 9, A. 3/5, C. 19, L. 1. 44, L. tr. 8/8.

Length of head from $\frac{2}{11}$ to $\frac{1}{8}$, of caudal $\frac{2}{3}$, height of body $\frac{1}{4}$ of the total length. *Eyes*, diameter $\frac{2}{7}$ of length of head, $1\frac{1}{4}$ diameter from end of snout, and also apart. Dorsal and abdominal profiles about equally convex. Interorbital space nearly flat. Upper jaw slightly the longer. Mouth compressed, narrow, somewhat horseshoe-shaped, as in some species of *Barbus*, and directed downwards. Lip on upper jaw moderately thick, and continuous with that on the mandible, which becomes thin in the mesial line and reflected from the lower jaw; no inner fold across the mandible, neither lip fringed; no horny substance over lips or inside the lower jaw. *Barbels* absent. *Fins*: dorsal without any osseous ray, commencing rather nearer the snout than the root of the caudal, and arising somewhat in advance of the ventrals, whilst it does not extend to above the anal; its upper edge is slightly concave, and the fin three fourths as high as the body below it; pectoral hardly so long as the head, and not reaching the ventrals, which last extend to over the commencement of the anal; caudal very deeply forked. *Scales*, none along the bases of the vertical fins. *Lateral line*, five rows of scales between it and the base of the ventral. *Colours*: silvery grey above, becoming lighter beneath; a dark band along the middle of the body, ending in a diffused black spot at the base of the caudal fin; fins orange, except the dorsal, which has a black band, commencing in the middle third of the fin, and becoming narrower to its posterior end; summit of anterior portion reddish, tipped with white.

Habitat. Vithry, in the Wynaad, where three specimens up to 6 inches in length were taken.

In none were the tubercles on the snout.

BARBUS (BARBODES) WYNAADENSIS, sp. nov.

B. III. D. 4/9, P. 17, V. 9, A. 3/5, C. 19, L. l. 26-26, L. tr. 4 + $\frac{1}{2}$.

Length of head, caudal, and height of body each $\frac{1}{2}$ of the total length.

Eyes small, $\frac{1}{5}$ of length, $1\frac{3}{4}$ diameter apart, and 2 from end of snout.

Dorsal and abdominal profiles about equally convex; body not elevated. Snout a little swollen, and lower jaw somewhat the shorter.

Lips moderately thick, not lobed. The posterior extremity of the maxilla extends to nearly beneath the anterior edge of the orbit. Interorbital space almost flat. *Barbels* of moderate thickness; the maxillary pair as long, or longer than, the orbit, the rostral $\frac{1}{2}$ shorter.

Fins: dorsal commences midway between the end of snout and the base of the caudal; its last undivided ray osseous, weak, but quite or nearly as long as the postorbital portion of the head, and having a soft termination; ventrals arise under the middle of the dorsal; the pectoral reaches to above the commencement of the ventral, which last does not reach the anal; caudal deeply forked. *Lateral line* complete, $2\frac{1}{2}$ to 3 rows between it and the base of the ventral fin. *Colours* very similar to those of *Barbus Denisonii*, except that it is orange below the black lateral band, which terminates in a black blotch at the base of the caudal.

Habitat. Vithry, where it is very common in the larger streams. Out of upwards of forty specimens, the largest was 8 inches in length.

NEMACHEILUS PULCHELLUS, sp. nov.

B. III. D. 2/10, P. 15, V. 9, A. 2/5, C. 21.

Length of head $\frac{2}{11}$, of caudal $\frac{3}{8}$, height of body $\frac{1}{2}$ of the total length.

Eyes rather small, in the middle of the length of the head, about 2 diameters from end of snout, and rather above 1 apart. The width of the head opposite the opercles equals its length without the snout, which latter is somewhat pointed; the cleft of the mouth extends halfway to below the orbit. *Barbels* six; the rostral thicker than the maxillary pair; whilst none are more than 1 diameter of the orbit in length.

No enlarged prominence to preorbital. *Fins*: dorsal commences slightly nearer the snout than the base of the caudal, its upper edge is oblique, whilst the height of the fin equals that of the body below it; pectoral as long as the head, its central rays prolonged; it extends two thirds of the distance to the ventral, which latter reaches nearly three fourths of the way to the anal, the last, when laid flat, extending to the base of the caudal, which has sharp lobes. *Scales* very minute, but most apparent in the posterior portion of the body.

Lateral line moderately distinct. Free portion of the tail two thirds as high as long. *Colours*: this beautiful little Loach is greyish, becoming whitish below; there are two rows of large, vertical canary-coloured spots having deep-black margins along the side between the

head and the middle of the length of the body, posterior to which they become vertical bands, two thirds as wide as the ground-colour; each lobe of caudal with three or four oblique black bands, and a deep black spot at the centre of the base of the fin; dorsal yellow, with an orange spot at its anterior superior margin, and two wide black bands along it; anal with one black band.

Habitat. Bowany river. Twenty-one specimens up to $2\frac{1}{2}$ inches collected.

NEMACHEILUS CHRyseus, sp. nov.

B. III. D $\frac{2}{8}$, P. 11, V. 9, A $\frac{2}{5}$, C. 19.

Length of head nearly $\frac{1}{3}$, of caudal $\frac{1}{3}$, height of body $\frac{1}{3}$ of the total length. *Eyes* in the commencement of the anterior half of the head, 1 diameter apart. The width of the head equals its length without the snout. Preorbital not enlarged. *Barbels* six, all short; the maxillary pair the longest, but not equalling 1 diameter of the orbit in length. *Fins*: the dorsal commences slightly nearer to the snout than to the base of the caudal, its upper edge straight, and its height equal to three fourths of that of the body below it; pectoral as long as the head, and extending two thirds of the distance to the base of the ventral, which latter reaches three fourths of the way to the anal; anal fin does not extend to the caudal if laid flat; the latter fin with pointed lobes in its last fourth. *Scales* small but distinct. *Lateral line* complete. *Free portion of tail* as high as long. *Colours*: golden; in the immature about ten greyish vertical bands, wider than the ground-colour, exist between the commencement of the dorsal fin and the tail; dorsal fin with three or four rows of fine spots; caudal with a black bar at its base, and eight or ten vertical sinuous rows of spots on its lobes; in the adult the body is very indistinctly banded, but its upper half has numerous black spots.

Habitat. Bowany river. Three specimens up to $2\frac{2}{10}$ inches collected.

Amongst the sharks of Malabar, the *Carcharias melanopterus*, Quoy and Gaim., appears to be the most common of the larger sorts; whilst on the Madras coast it is comparatively rare. It attains many feet in length. Its liver is largely used in the preparation of fish-oil.

CARCHARIAS MALABARICUS, sp. nov.

Width of head equals its length from end of snout to angle of mouth.

Snout nearly as long as the mouth is wide. No labial fold except a groove at the angle of the mouth. *Teeth*: upper ones oblique, triangular, with rather enlarged bases, serrated in the whole extent of their cusps, twenty-eight; teeth in the lower jaw erect, slender, lanceolate, not serrated, and having broad bases. *Fins*: the posterior end of the base of the dorsal fin is the same distance from the ventral

as its anterior end is from the root of the pectoral; pectoral fin not so long as the head, one fourth longer than broad at its extremity, which is scarcely emarginate; its lower edge equals about half the length of its upper; base of second dorsal hardly above half the extent of that of the first dorsal, it is above the anal and about as large as it; upper edge of caudal straight; its length is slightly more than that of the interval between its origin and the base of the ventral. *Colours*: greyish above, white below; *the upper half of the anterior two thirds of the second dorsal is deep black.*

Habitat. One specimen, 15 inches in length, taken at Pallipport, near Cochin, and two more, each 16 inches in length, at Calicut on the Malabar coast.

Calicut, January 21, 1873.

On some new Species of European Spiders.

By the Rev. O. P. CAMBRIDGE, M.A.

(PLATES XIV. & XV.)

[Read May 1, 1873.]

THE twelve spiders comprised in the following descriptions have been found almost at the extremities of Europe; two are from near Aberdeen, in Scotland, four from Corfu, two from the south of France, one from near Naples, one from Ischl, one from Bruck-am-Main, in Austria, and one from Switzerland. They belong to eleven genera, some of them widely distant from each other. Sketches are added, either of the whole or of portions of each species, from which it is hoped that the often minute, but generally satisfactory, distinctive characteristics of each species may be more easily perceived than from descriptions alone. The figures are not drawn to any particular scale; but a line is in each case added showing the natural length of the spider independently of its legs.

List of species, with references to page, Plate and figures.

- Ecobius ionicus*, ♂. Corfu. p. 531, Pl. XIV. fig. 1.
Ariadne ionica, ♂. Corfu. p. 532, Pl. XIV. fig. 2.
Clubiona voluta, ♀. Aberdeen. p. 533, Pl. XIV. fig. 3.
Dictyna lugubris, ♂, ♀. Corfu. p. 535, Pl. XIV. fig. 4.
Calotes Pickardi, ♂. Switzerland. p. 537, Pl. XIV. fig. 5 a, d.
Textrix Moggridgii, ♀. Mentone. p. 537, Pl. XIV. fig. 6.
Linyphia lepida, ♀. Dunkeld. p. 539, Pl. XV. fig. 7.